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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional): **4195-033**

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Date: **May 24, 2010**

Signature:

Typed or printed name: **KATHLEEN MCDERMOTT**

Application Number:	Filed:
10/577,753	**April 27, 2006**

First Named Inventor: **Catherine Daines**

Art Unit:	Examiner:
1797	**LUCAS A. STELLING**

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

I am the

☐ applicant/inventor

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

☒ attorney or agent of record
Registration Number: 25620

☐ attorney or agent acting under 37 CFR 1.34.
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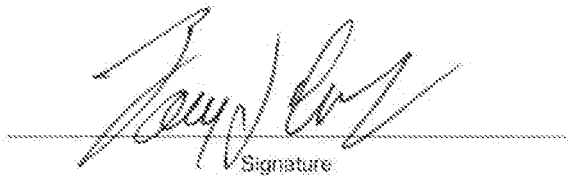

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May 24, 2010

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Daines, et al.

Serial No.: **10/577,753**

Filed: **April 27, 2006**

For: **Installation and Method for the Purification of an Aqueous Effluent by Means of Oxidation and Membrane Filtration**

PATENT PENDING

Examiner: Lucas A. Stelling

Group Art Unit: 1797

Confirmation No.: 2835

Docket No: **4195-033**

Mail Stop Amendment
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May 24, 2010
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/Kathy McDermott/
Kathy McDermott

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PRE-APPEAL REVIEW REQUEST BRIEF

Independent claims 65 and 70 stand rejected under § 103 as being unpatentable over U.S. Patent No. 4,137,162 (Mohri) in view of U.S. Patent No. 5,407,644 (Rytter), U.S. Patent No. 5,607,593 (Cote), U.S. Patent No. 4, 589,927 (Allen) and U.S. Patent No. 4,076,617 (Bybel).

Examiner combines five different references to piece together the §103 rejection. As described below, the rejections do not have any rational technical underpinnings supporting the obviousness rejection. Instead, it appears that the examiner has merely set forth several different references in an attempt to find each of the several different claimed elements.

However, simply because several claimed elements may found in several prior art references does not necessarily mean that it would be obvious to one of ordinary skill in the art to combine the teachings of the references to yield precisely what Applicants claim. Moreover, simply setting forth any type of motivation to combine the references does not meet the requirements of a *prima facie* case of obviousness. The motivation set forth by the examiner must have some rational underpinning to support an obviousness rejection.

Claim 65 requires "after directing the influent through the fluidized bed of catalyst material and oxidizing gas in the lower portion of the column reactor, filtering at least a first portion of the treated water in the immersed membrane filtration unit disposed in the upper portion of the column reactor." In rejecting claim 65, the examiner acknowledges that Mohri does not describe the claimed immersed membrane filtration unit. Instead, the examiner cites Rytter for describing a filter unit. The examiner states that it would be obvious to provide a filter in the device of Mohri to "ensure that the catalyst material is retained in the reactor and not drawn off...with the products stream." Final Office Action, p. 4. This is error. There is no factual basis for this finding. Mohri already describes a method for retaining the catalyst material in the reactor. For example, Mohri state that by using a packing material having a specific pore size prevents the catalyst from flowing out of the reactor. Mohri states the following:

> "[t]he porous packing piece has at least one pore having an average pore diameter 1.5 to 8 times, preferably 2 to 5 times, the average particle diameter of the activated carbon particles. If the average pore diameter of the packing piece is less than 1.5 times, it is difficult for the solid particles to move freely through the pores of the porous packing, and it is impossible to maintain a uniform fluidized state of the solid particles....If the size is more than 8 times, the action of the porous packing to control the motion of the solid particles is reduced, and the fluidized state desired in the present invention cannot be achieved. Consequently, the flowing of the solid particles out of the contacting container cannot be prevented."

Mohri, col. 2 line 66 - col. 3, line 13.

Membrane filters are designed to remove suspended solids -- not to retain catalysts or any other components in a tank or reactor. That is indisputable. In the end, there is no

technical basis for incorporating the immersed membrane filter into the reactor of Mohri. The Patent Office has failed to make out a *prima facie* case of obviousness.

In addition, the examiner states that it would be obvious to place a filter in the upper portion of the reactor so the "contaminated water…would have had ample opportunity to contact the catalyst and the oxidizing gas." However, the examiner's reasoning is flawed. It is not necessarily true that a filter should always be placed in the top portion of a reactor in order to provide ample opportunity for the wastewater to contact the reagents within the reactor. Instead, several other factors contribute to the time wastewater contacts the reagents in the water. For example, the volume of the reactor, the flow rate of the wastewater, and the operating pressures all contribute to the residence time in a reactor. Thus, one of ordinary skill in the art understands that the residence time can be increased by varying several different parameters in the reactor. For example, if conditions are properly set, wastewater being introduced into the reactor having a filter disposed in the middle or bottom portion of the reactor may have a higher residence time within the reactor than wastewater being introduced into a reactor having a filter in the top portion of the reactor. There is simply no technical reason one of ordinary skill in the art would change Rytter's simple filter to the claimed membrane filtration unit and then place the membrane filtration unit in the top portion of Mohri's reactor, as suggested by the examiner.

Claim 65 further requires "recirculating at least a portion of the non-permeated treated water from the upper portion of the column reactor, through a recirculation line that lies outside of the column reactor and back into the lower portion of the column reactor." In rejecting claim 65 the examiner acknowledges that neither Mohri nor Rytter disclose the claimed recirculation line or a method of recirculating non-permeated (non-filtered) treated water. Thus, the examiner cites Allen for this teaching and states that it would be obvious to "provide a recirculation line…in order to allow for multiple passes of slurry through the reactor, thereby allowing for a more complete reaction at high flow volumes." Final Office Action page 5. There is no evidence

that recirculating non-permeated water in the modified Mohri process would yield more complete reactions at high flow volumes. Moreover, Mohri does not suggest that his reactions are incomplete. Furthermore, Mohri does not suggest that there is a need for higher flow volumes. Under the circumstances, it is difficult to envision why a person of ordinary skill in the art would increase the cost and complexity of the Mohri process by recirculating non-permeated water when there appears to be no legitimate reason for doing so.

As noted above, Applicants do not believe that it is obvious to recirculate non-permeated water. However, even if it were obvious, it is difficult to understand why a person of ordinary skill in the art would draw a distinction between non-permeated water and permeated water. If the idea is to allow for more complete reactions at high volume flows, then it would seem appropriate to recirculate at least a portion of the permeated water.

Claims 65 and 70 also call for recirculating a portion of the oxidizing gas from the upper portion of the column reactor, through a recirculation loop disposed outside of the reactor and back to a lower portion of the column reactor. The Patent Office appreciates that neither Mohri, Rytter, Cote, nor Allen teach this. To the four-way combination that the Patent Office has proffered, the Patent Office now adds a fifth reference, the patent to Bybel. The Patent Office maintains that it would be obvious to reuse the unreacted ozone gas in Mohri as modified in order to conserve power needed to produce ozone. The Patent Office does not address that providing provisions for recirculating ozone or an oxidizing gas comes at a cost. There is a capital cost and there is an ongoing control and maintenance cost. It would not be obvious to again modify the modified Mohri process to recycle the oxidizing gas.

Related limitations are found in independent claim 70 which requires that "a substantial portion of the fluid bed of catalyst material is disposed in the lower portion of the column reactor" and " [a] membrane filtration unit being disposed in the upper portion of a column reactor over a substantial portion of the fluidized bed." In addition, claim 70 requires "a recirculation line extending exteriorly of the reactor for directing a non-permeated treated water stream from the

upper portion of the column reactor into a bottom portion of a column reactor." For substantially the same reasons as discussed above, claim 70 defines patentable subject matter over the cited art.

In light of the foregoing remarks, Applicants respectfully requests that the Panel overturn all rejections and allow all pending claims.

Respectfully submitted,

COATS & BENNETT, P.L.L.C.

Dated: May 24, 2010

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